Dynamics of Comparative Advantage and Export Potentials in Bangladesh

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Abstract

Comparative advantage is a key determinant of international trade. Owing to declining export growth and escalating trade deficits in Bangladesh; this study investigates the dynamics of comparative advantage and pinpoints potential export products. We analyze export data of 97 products at the three-digit levels of the Standard International Trade Classifications (SITC) from 1990 to 2007. The analytical tools include the normalized revealed comparative advantage (NRCA) index and products mapping. Empirical results uncover that Bangladesh possesses comparative advantage in some primary and labor intensive manufacturing products; competitiveness of the primary products has declined while labor intensive products have become more competitive; and there are some potential products that require policy support for strengthening competitiveness.

Key words: Revealed Comparative Advantage, Products Mapping, Normalized Revealed Comparative Advantage Index, Trade Balance Index, Bangladesh
JEL Code: F14

1. Introduction

Although Bangladesh launched liberalization of international trade regime since the early 1990s, it achieved stronger export than import growth starting from one decade prior to the liberalization initiative and continued until the end of the twentieth century. For example, exports grew at an average rate of 8.6 and 13.1 percent during the 1980s and 1990s compared to a 3.8 and 10 percent average growth rate of imports.[1)] Superior export

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performance emanated from stunning growth of the clothing industry under the regime of the multi-fiber agreement (MFA). However, export growth of the clothing / readymade garments (RMG) industry as well as its share in the country's total exports has been falling since the very start of the present century. Consequently, the average growth rate of exports dropped to 10.7 percent, while the import growth rate jumped to 12.9 percent during the period of 2001 to 2010. Starting from 2007, the export growth rate continued to fall substantially and caused further worsening of trade balance.[2] Thus, increased openness gradually prompted higher import growth than export and caused trade deficits to climb up steadily. Under such circumstances, Bangladesh is challenged with finding potential new industries for reviving the tempo of export growth in the wake of stiff regional and global competition and openness; and curbing escalating trade deficits. Empirics on bilateral trade flows evidence that Bangladesh could not gain reasonable access to the key member countries of regional trade agreements (RTAs) although commodities from the latter's gained increasing access to the former over time. The past study also reveals that comparative advantage theory accounts for international trade patterns in Bangladesh (Ullah and Inaba, 2011). This underscores that difference in resource endowments between Bangladesh and its trade partners is an important determinant of bilateral trade flows. Since comparative advantage is a major source of cross-country trade, internal trade policy should be compatible with the country's comparative advantage. Some economists argue that comparative advantage is dynamic instead of static (Widodo, 2009). However, analysis of aggregate trade data neither uncovers which products are more competitive nor ascertains the dynamic aspect of comparative advantage. Therefore, the present research examines the comparative advantage of Bangladesh's export commodities and pinpoints changes in competitiveness over time. Such an assessment helps to determine which industries possess strong comparative advantage and allows us to ascertain the potential industries for boosting export performance.

Studies by Bhuyan and Ray (2006), Siriwardana and Yang (2007), and Rahman et al. (2011) made valuable contributions in evaluating the comparative advantage (CA) of Bangladesh at bilateral and regional levels, primarily against the SAARC (South Asian Association for Regional Cooperation) countries. Nevertheless, the former studies do not facilitate a detailed assessment of Bangladesh's CA in the world market. Moreover, studies that apply the Balassa index do not uncover changes in the patterns of CA over time. Hence, this study focuses on time series data of a wider range of commodity groups to make a dynamic assessment of the comparative advantage of Bangladesh's exports in the world market. In order to assess comparative advantage patterns, we applied the normalized revealed comparative advantage (NRCA) index developed by Yu et al. (2009)[3] which possesses desirable properties for examining the dynamics of comparative advantage. Besides, products mapping technique — a combination of the NRCA index and the trade balance index (TBI) — was adopted to evaluate changing patterns of competitiveness and to ascertain the potential products to raise exports. The rest of the paper is organized as follows; Section 2 gives an overview of Bangladesh's trade structure. Section 3 presents

methodology and data sources. Section 4 provides results and discussion. Finally, section 5 states our conclusion.

2. Trade Structure of Bangladesh

Table 1 presents export and import composition from 1980 to 2007 by ten major commodity groups (SITC 0-9). In the early 1980s, manufactured goods classified by materials (SITC 6), crude materials (SITC 2), and food and live animals (SITC 0) constituted the export basket of Bangladesh. At that time, SITC 6 commodities as such jute yarn, jute fabrics, bags and sacks of textile materials, and leather generated about two-thirds of total export earnings. Other key export commodities were jute fibers/raw jute (SITC 2) and tea and fish (SITC 0). However, the export share of these traditional commodities sharply declined over time. It is evident that the export structure began to change from the mid-1980s and completely shifted within the subsequent decade. From that period, export of miscellaneous manufactured goods (SITC 8) grew substantially that solely consists of readymade garments (RMG). Although the RMG sector still contributes about three-fourths of the total export earnings, its export share continues to decline. Meanwhile, export of machinery and transport equipment (SITC 8) has risen in recent years, which indicates the potential of the light engineering sector to increase Bangladesh's export receipts.

In contrast to export, import composition is more diversified and does not show any drastic shift among the major commodity groups. In 1980, machinery and transport equipment (SITC 7) had the highest import share. At that time, the most commonly imported machinery products were motor vehicles, railway vehicles, non-electric power generating machines, and electric power machines. Although the import share of machinery products dropped during the second half of the 1980s and the 1990s, it bounced back to being the top import category in 2005 due to an increase in the import of textiles, leather machines, and telecommunication equipment. During the entire period under review, manufactured goods classified by materials (SITC 6) accounted for a significant part of import expenditure. Imports in this category primarily consist of industrial raw materials or intermediate inputs such as textile yarn, cotton fabrics, fabrics of man-made fibers, iron, and portland cement. In 2005, textile yarn and fabrics shared 51 and 11.3 percent of total manufactured goods import and total imports, respectively. In recent years, import of crude materials (SITC 2) has gone up due to rising demand for cotton as an input of textile and RMG sectors. Thus, export of RMG is highly dependent on imported inputs. Mineral fuels (SITC 4) and vegetable oils (SITC 5) including soya bean and palm oils also constitute key import items. Soya bean and palm oil accounted for the highest import expenditures in 2000 and 2007, respectively. Frequent price hikes of fuels and oils in the international market resulted in increased import costs for Bangladesh. Food and live animal (SITC 0) imports shared a significant part of imports from 1980 to 1995 due to abundant import of

Table 1: Share of commodities in total trade of Bangladesh (in percent)

	Food and live animals	Beverages and tobacco	Crude materials (except fuels)	Mineral fuels and lubricants	Animal and vegetable oils and fats	Chemical products	Manufactured goods classified by material	Machinery and transport equipment	Miscellaneous manufactured articles	Commodities not classified by kind
	0	1	2	3	4	5	6	7	8	9
Exports										
1980	12.4	0.0	18.7	0.0	0.0	1.4	64.6	1.3	0.4	1.2
1985	17.8	0.1	13.3	2.5	0.0	0.2	46.7	1.6	17.4	0.4
1990	14.2	0.1	6.8	1.3	0.0	1.1	33.9	0.9	41.6	0.1
1995	10.4	0.0	2.7	0.4	0.0	3.0	19.6	1.6	60.9	1.3
2000	7.5	0.1	1.5	0.2	0.0	1.3	10.7	1.3	77.1	0.2
2005	5.9	0.3	1.9	0.6	0.0	2.0	11.0	1.9	76.4	0.1
2006	5.8	0.2	1.9	0.8	0.0	1.2	15.5	1.6	73.1	0.0
2007	6.3	0.2	3.4	1.6	0.0	1.3	10.5	2.6	74.0	0.0
Imports										
1980	16.1	0.2	8.4	9.5	6.7	12.1	19.6	25.2	2.0	0.2
1985	16.2	0.1	6.5	16.5	7.8	11.8	20.5	18.4	2.1	0.2
1990	13.9	0.2	7.5	16.5	4.1	8.2	27.1	18.4	4.0	0.2
1995	11.6	0.2	5.7	7.7	3.9	10.1	38.9	14.6	7.0	0.2
2000	8.3	0.6	7.8	7.3	6.5	11.1	32.6	19.5	6.2	0.1
2005	8.0	0.1	9.6	10.2	5.2	11.8	22.2	27.5	5.1	0.2
2006	9.6	0.2	9.6	12.8	6.2	10.7	19.5	27.3	3.9	0.2
2007	12.5	0.1	10.4	10.5	8.9	11.9	17.1	23.0	4.0	1.6

Note: Commodity groups are based on the one-digit level of SITC (rev 3)
Source: Authors' calculations based on the UN Comtrade database

un-milled wheat and meslin. However, import of such food items has gradually declined. Among other commodities, import of chemical products (SITC 5) and beverages and tobacco (SITC 1) remains stable. Imported chemical products mainly include crude petroleum, gas oils and fertilizer.

3. Methodology and Data

3.1 *Normalized Revealed Comparative Advantage (NRCA) Index*

Balassa (1965) derived the popularly used index to measure whether or not a country has a comparative advantage in a particular commodity. While the BRCA index is widely used, its interpretation can be ambiguous. Havrila and Gunawardana (2003) point out that the indirectness of the RCA based on post-trade data creates a problem related to the interpretation of the index. Hillman (1980) and Yeats (1985) assert that the BRCA index can only signify whether or not a country has comparative advantage in a commodity theoretically because its magnitude has neither the ordinal nor the cardinal property. Another shortcoming of the BRCA index is its asymmetric property (Hinloopen and Marrewijk, 2001; Yu et al. 2009). Moreover, Hoen and Oosterhaven (2006) assert that deriving the standard multiplicative RCA index appears to be impossible from the theoretical standpoint since it depends on the number of countries and sectors. In addition to the limitations outlined above, the BRCA index is especially sensitive for smaller countries (Yeats, 1985). Under this consideration, application of the BRCA index to assess the comparative advantage of Bangladesh's exports is more problematic since Bangladesh has a very small export share in the world market.

Until now, many authors including Proudman and Redding (1998), Laursen (2000), Hoen and Oosterhaven (2006), and Yu et al. (2009) developed alternative versions of the RCA index. Although each of the consecutive indices contributed to overcome some of the limitations of the BRCA index, Yu et al. (2009) devised the normalized revealed comparative advantage (NRCA) index enabling researchers to assess comparative advantage dynamically rather than statically. An important contribution of the NRCA index is the derivation of the cardinal property, which makes it possible to compare magnitudes of comparative advantage between time periods as well as between products.

The NRCA index calculates the degree of deviation of a country's actual export from its comparative-advantage-neutral level in terms of its relative scale with respect to the world export market. The salient features of this index are its symmetrical distribution and independence from the number of countries and sectors. Hence, the present study applies the NRCA index in order to examine comparative advantage. The NRCA index can be expressed as follows:

$$NRCA_{ij}=E_{ij}/E-E_{j}E_{i}/EE \quad (1)$$

Where $NRCA_{ij}$ refers to the normalized revealed comparative advantage index of commodity j in country i; E_{ij} is the export of commodity j from country i; E_{j} indicates

total world export of commodity j; E_i stands for total export from country i; and E represents total world export.

In equation (1), $NRCA_{ij}$ takes positive or negative values. A positive value indicates that country i's actual export of commodity j is higher than its comparative-advantage-neutral level, suggesting that country i has a comparative advantage in commodity j. The higher (or the lower) the $NRCA_{ij}$ score is, the stronger the comparative advantage (or disadvantage) will be. NRCA scores follow a symmetrical distribution, ranging from $-1/4$ to $+1/4$ with 0 being the comparative-advantage-neutral point (Yu et al. 2009). The empirical section of this paper justifies the appropriateness of the NRCA index in assessing competitiveness of export items by comparing the relative rankings and relative export share of products in the export basket.

3.2 *Products Mapping*

Widodo (2008) constructed the 'products mapping' tool to examine dynamic changes in the comparative advantage of the East Asian countries from the perspective of flying geese patterns of industrial competitiveness in the region. This model consists of two dimensions: domestic trade balance and international competitiveness. In order to measure the two aspects of the products mapping, Widodo (2008) relied on the trade balance index (TBI) of Lafay (1992) and the revealed systematic comparative advantage (RSCA) index of Laursen (1998). The former index unveils whether a country has specialization in export or import of a particular product and is measured by equation 2.

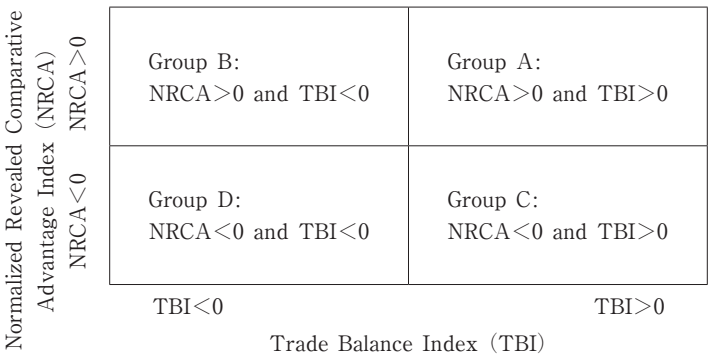
$$TBI_{ij}=(X_{ij}-M_{ij})/(X_{ij}+M_{ij}) \quad (2)$$

where TBI_{ij} indicates trade balance index of country i for product j; X_{ij} and M_{ij} denote export from and import by country i of product j, respectively. Value of this index ranges from -1 to $+1$. $TBI_{ij}>0$ indicates that country i is the net exporter of product j while $TBI_{ij}<0$ signifies that country i is the net importer of product j.

Instead of the RSCA index of Laursen (1998), this study applies the NRCA index of Yu et al. (2009) for measuring export competitiveness. Thus, products mapping is constructed by combing the trade balance index (TBI) of Lafay (1992) and the NRCA index of Yu et al. (2009). Figure 1 demonstrates the products mapping which connotes the same meaning of Widodo (2008).

Based on the TBI and NRCA indexes, products mapping categorizes the products under four groups. Group A consists of products whose TBI and NRCA indices are positive. When product mapping is done for export basket of a country, this group represents the most vital export products since they upbeat global competition and strengthen country's balance of payments. On the contrary, Group D encompasses products that not only lack competitiveness in global market but also causes trade deficits since the country is a net importer. Group B comprises of competitive products but the country lacks export specialization, while Group C includes products that lack comparative advantage but the country possesses export specialization. Thus, Group B and C can be regarded as potential products to raise export earnings but requires dissimilar strategies for future resource

Fig. 1: Products Mapping



allocation decisions.

3.3 *Data and Classification of Industries*

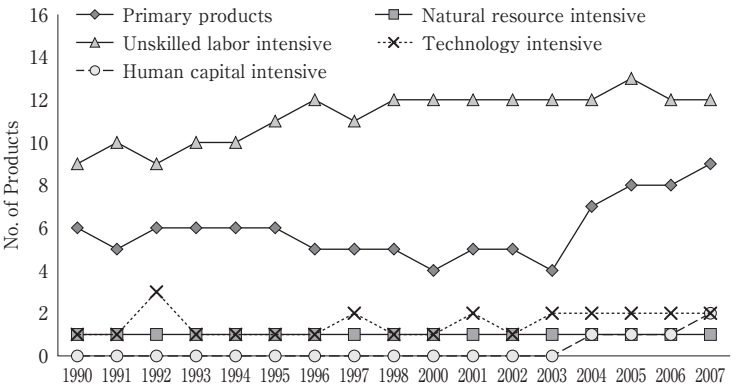
This study analyzes 97 export commodities at the three-digit level of the Standard International Trade Classifications (SITC) rev. 3. The selected products accounted about 97 percent of the total exports from Bangladesh in 2007. The three-digit SITC is preferred because commodities at this level are produced with similar factors and technologies across different countries (Greenaway and Milner, 1986) and comparative advantage studies by Sheng and Song (2008), Widodo (2008, 2009), Yue and Hua (2002) relied on product classification at the three digit level. Following the classifications by the Empirical Trade Analysis (ETA), this study groups the selected 3 digit SITC produets into five main types of industries, namely primary products, natural resource intensive products, unskilled labor intensive products, technology intensive products, and human capital intensive products. Appendix reports the products in each industry category at the three-digit level SITC. Data periods include 1990-2007 and are obtained from the UN Comtrade database.[4)]

4. Results and Discussion

4.1 *Comparative Advantage Patterns*

In 1990, Bangladesh possessed comparative advantage in 17 out of 97 products and the number has reached to 26 at the end of 2007. In corollary to labor abundance, Bangladesh possesses comparative advantage mostly in unskilled labor intensive manufacturing products and in few agricultural products. Figure 2 shows the distribution of products having $NRCA>0$ in five broad groups of industries following the classification of sectors by the Empirical Trade Analysis (ETA). In the labor intensive group, the number of products having positive NRCA increased from 6 in 1990 to 9 in 2007. Although comparison of the number of competitive labor intensive products between 1990 and 2007 shows a 50 percent increase during this period, CA patterns remains unchanged since 1996. This means, Bangladesh could not generate horizontal spill-over effects of its existing

Fig. 2: Trends in the number of products with NRCA>0 in five categories of industries (1990-2007)



competitiveness in some labor intensive industries. Number of agricultural products with $NRCA>0$ reflected a rising trends since 2004 and the total number of competitive products reached to nine at the end of 2007 compared to six in 1990. Scenario of competitive products in other three categories of industries, *i.e.,* human capital intensive, natural resource intensive, and technology intensive has always been either quite low or nonexistent. In the category of natural resource intensive products, only SITC 562 (chemical fertilizer *i.e.,* urea) consistently possessed comparative advantage during the whole period of analysis. Besides, SITC 522 (inorganic chemical elements) gained competitiveness during the post 2000s.

Table 2 presents Bangladesh's ten most competitive export products and their relative share in the country's total export receipts in 1990 and 2007. Comparison of the relative rankings and relative export share perfectly coincides and justifies the appropriateness of the NRCA index in assessing competitiveness of export items. All but SITC 074 (Tea and mate) and SITC 843 (male cloths, knitwear) products were common in the lists for 1990 and 2007. Tea and mate disappeared from the list of 2007, while knitwear garments for male took the fourth rank in that year. Both in 1990 and 2007, the list of competitive products was dominated by the apparel industry whose relative export share increased over time. In fact, five categories of apparel products occupied the top five ranks and accounted more than 70 percent of Bangladesh's total export earnings in 2007. Within the apparel industry, knitwear segment (SITC 843 and 844) attained more competitiveness and hence its export contribution has been rising. Comparison of the NRCA indices between 1990 and 2007 reveals that six of the ten products (845, 841, 842, 843, 844, and 651) have recorded a gain, while the other four products (036, 658, 611, and 264) have exhibited a decline in competitiveness. The ranks of competitive products justify that there has been an intra-industry shift in the relative competitiveness of textile and clothing products between 1990 and 2007. It further reveals the failure of Bangladesh to diversify competitiveness in new industries and also inability to maintain competitive strengths in existing agricultural products. Along with a declining trend in competitive strengths of

Table 2: Bangladesh's ten most competitive products in 1990 and 2007

1990					2007				
Rank	SITC Code	Product Definition	NRCA indices*	Export share	Rank	SITC Code	Product Definition	NRCA indices**	Export share
1	841	Male cloths (not knit)	138.1	25.7	1	845	Apparel (knitor not knit)	251.7	27.4
2	611	Leather	62.0	11.6	2	841	Male cloths (not knit)	220.2	23.6
3	036	Crustaceans, molluscs, aquatic invertebrates	52.4	9.8	3	842	Female cloths (not knit)	89.0	9.9
4	842	Female cloths (not knit)	49.1	9.5	4	843	Male cloths (knit)	44.7	4.9
5	658	Made-up articles of textile	40.9	7.7	5	844	Female cloths (knit)	44.4	5.0
6	264	Jute	36.8	6.7	6	036	Crustaceans, molluscs, aquatic invertebrates	43.1	4.7
7	845	Apparel (knit or not knit)	13.0	3.1	7	658	Made-up articles of textile	26.2	3.0
8	074	Tea and mate	12.4	2.3	8	611	Leather	19.3	2.2
9	651	Textile yarn	11.4	2.8	9	651	Textile yarn	17.5	2.2
10	844	Female cloths (knit)	9.8	2.0	10	264	Jute	14.2	1.5

*, **: To facilitate discussion and comparison, NRCA scores were rescaled by a constant value of 1,000,000

primary products, their export share has been shrinking and hence, the overall export patterns have tended to be more concentrated in 2007 than that of 1990.

4.2 *Products Mapping*

Figures 3 and 4 depict products mapping of Bangladesh's export basket at two points of time: 1990 and 2007. The scenario of products mapping in 2007 remained almost same as it was about two decades before. In 1990, 76 percent of the total products lacked any comparative advantage which dropped to 70 percent in 2007 (Group D). Besides, Bangladesh was a net importer of Group C products although those products exhibited NRCA>0. Thus, altogether, 81 percent and 77 percent products recorded a trade deficit in 1990 and 2007, respectively. Lack of comparative advantage in the chunk portion of products in international trade is the key reason for widening trade deficits in Bangladesh's balance of payments.

Among the 97 products examined in this study, only 12 percent and 18 percent products

Fig. 3: Products Mapping for 1990

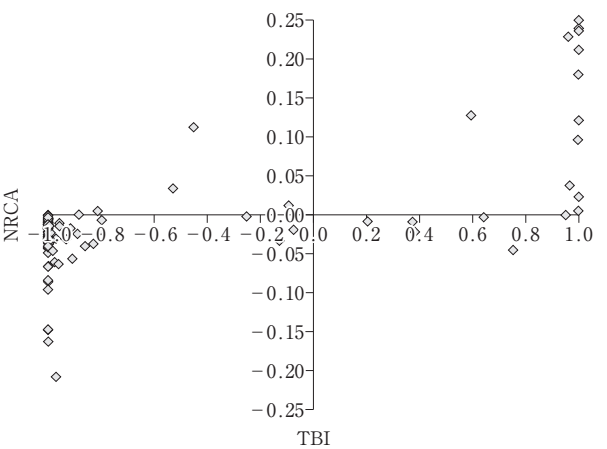


Fig. 4: Products Mapping for 2007

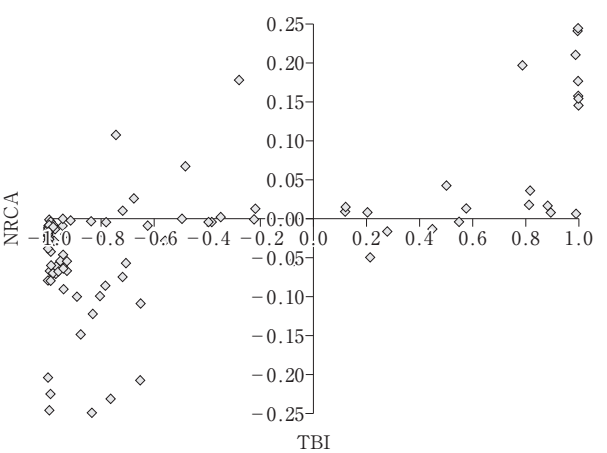
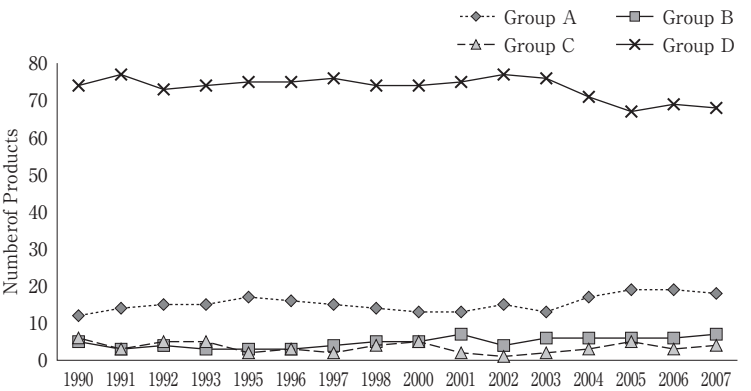


Fig. 5: Trends in the number of products based on products mapping (1990-2007)



Note: Data for 1994 and 1999 were not available.

belonged to Group A (products having comparative advantage and export specialization) in 1990 and 2007, respectively. Figure 5 shows the trends in the number of products in Group A-D based on products mapping. No obvious shift in the comparative advantage patterns is visible. The big gap between the number of products having NRCA>0 and NRCA<0 clearly demonstrates persisted trade deficits. This brings to the light that Bangladesh has achieved a subtle success in export diversification since the liberalization of trade regimes from the early 1990s.

4.3 *Potential Products for Exports*

We discern the potential products to raise exports and these are mentioned in Table 3. This list basically consists of the products that appear in the Group B and C in the Products Mapping. Group B consists of products having NRCA>0 but TBI<0, while Group C includes products with reverse features. These products are termed as 'potential' because Group B not only entails strength to compete in international market (positive NRCA) but also has strong demand in the domestic market (negative trade balance) which constitutes one of the determinants of national advantage outlined in the Porter's diamond of competitive advantage of nations (Porter, 1990). If these products are nurtured to gain export specialization, two benefits will accrue, *i.e.,* (i) exports will increase and (ii) import demand will decline. Furthermore, domestic demand condition will facilitate these products to benefit from scale effects that will also contribute to penetrate foreign markets. In Table 3, all the products under the industry group B except SITC 263 (cotton) persistently showed positive NRCA and negative TBI during the entire period of analysis indicating their heavy import demand and also ability to strive global competition. Hence, capacity expansion of these products might play positive role to enhance competitiveness arising from scale efficiency and to reduce trade deficits by curbing import demand. Group C, on the other hand, has already gained access to international markets although they lack competitiveness. Products in this group can compete in the long run if they can gain

Table 3: Potential Products for Exports

SITC Code	Product Definition	Product Group*	NRCA	TBI
054	Vegetables (fresh and frozen)	B	+	—
263	Cotton	B	+	—
522	Inorganic chemical elements	B	+	—
562	Fertilizers (chemical)	B	+	—
651	Textile yarn	B	+	—
652	Cotton fabrics (woven)	B	+	—
785	Motor cycles and cycles	B	+	—
831	Travel goods and handbags (of leather, textile and plastic)	C	—	+
894	Baby carriages, toys, games and sporting goods	C	—	+

*: Product group follows the classifications based on products mapping.

competitiveness. Therefore, these products should either be provided a room for strengthening comparative advantage or resources should be reallocated to other competitive sectors. However, the former strategy should get priority over the latter. In particular, manufacturing of travel goods from leather (SITC 831) has potential to flourish in Bangladesh due to domestic supply of hides and skins. Low cost of labor in the country will act as an added advantage for this labor intensive manufacturing segment to compete in international markets.

5. Conclusion

This study uncovers that Bangladesh's comparative advantage is concentrated in some agricultural and low value-added labor intensive manufacturing industries like apparel, textile yarn and fabrics, pottery, footwear, leather, jute, tobacco, tea, and crustaceans. The number of the three-digit SITC products possessing comparative advantage increased from 17 in 1990 to 26 in 2007. Most of the new competitive products belong to non-traditional export industries as such footwear, ceramic household articles, bicycles and other non-motorized cycles, tobacco. Nonetheless, Bangladesh experienced little success to diversify its main export segment — labor intensive products — because the number of competitive products in 2007 remained same as it was in 1996. Furthermore, it is noticeable that traditional export commodities like leather, crustaceans, tea, and jute fibers gradually lost competitiveness; and export share of these products substantially dropped over time. Among those products, the tea sector experienced a remarkable loss of competitiveness. Comparison of the NRCA scores between 1990 and 2007 reveals that 22 products gained competitiveness.[5] In particular, five groups of apparel products, ranging from SITC 841 to SITC 845, gained significant CA and also achieved remarkable export growth. Thus, a significant increase in the competitiveness of woven and knitwear garments contributed to their outstanding export performance. The latest ranks of the competitive products justify

that there has been an intra-industry shift in the relative competitiveness of textile and clothing products between 1990 and 2007. Conversely, competitiveness and export share of primary products declined and therefore overall export patterns in 2007 has tended to be more concentrated than that of 1990. At this conjecture, Bangladesh should consider policy support to competitive sectors and pursue capacity expansion of potential industries, particularly, of those that possess positive comparative advantage, but suffer from negative trade balance. This will facilitate to bolster export growth and to curb escalating trade deficit.

Notes:

1) Export and import growth rates are authors' calculations based on the Direction of Trade, CD-ROM (ed.), February, 2011.
2) Export growth rates were 9.1, 7.4, 5.5 and 2.0 percent in 2007, 2008, 2009 and 2010, respectively.
3) For details on the properties of the NRCA index, see Yu et al. (2009).
4) Bangladesh's international trade data are available at the UN Comtrade database until 2007.
5) The NRCA scores of four commodities could not be compared due to missing data for some years.

Acknowledgements

The authors gratefully acknowledge helpful comments and suggestions from the participants of the Sixth Seminar for Econometric Analysis, Chukyo University, Nagoya, Japan, March 2011; the Kansai Seminar of Japan Society of Economic Statistics, Kyoto, Japan, April 2011; and the 6th London Business Research Conference, Imperial College, United Kingdom, July 2011.

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Appendix: List of products included in the analysis

Product Group	Product Group Name	3-digit SITC codes (SITC rev 3)
1	Primary Products	022, 034, 035, 036, 041, 044, 054, 057, 061, 074, 081, 098, 121, 122, 211, 222, 223, 247, 251, 261, 263, 264, 266, 278, 292, 333, 334
2	Natural Resource Intensive Products	611, 661, 684, 686
3	Unskilled Labor Intensive Products	651, 652, 653, 655, 656, 657, 658, 666, 793, 831, 841, 842, 843, 844, 845, 846, 848, 851, 894
4	Technology Intensive Products	513, 515, 522, 523, 541, 562, 582, 591, 598, 712, 713, 716, 721, 723, 724, 728, 741, 743, 744, 759, 764, 772, 773, 778, 893
5	Human Capital Intensive Products	531, 554, 625, 641, 673, 674, 677, 679, 699, 781, 782, 783, 784, 785, 892, 899

Note: Product group follows the classifications of the Empirical Trade Analysis (ETA), available at: http://www2.econ.uu.nl/users/marrewijk/eta/intensity.htm#Product group D: technology intensive products